



An Update on the Arctic Test Bed

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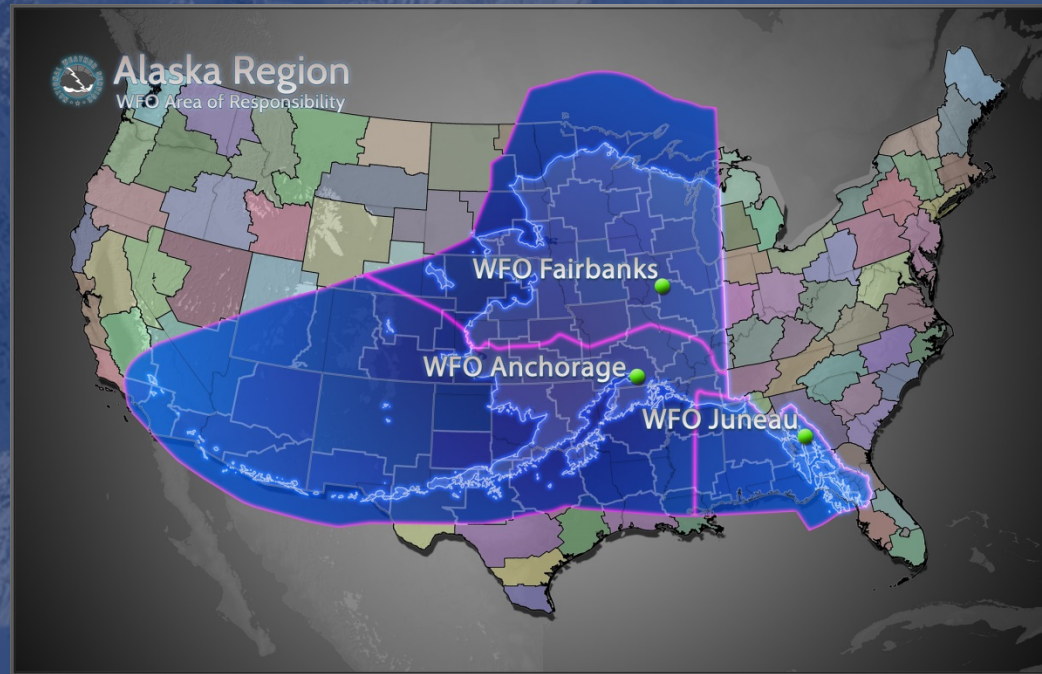


NOAA / NWS Arctic Test Bed

- NWS Alaska faces many unique challenges and unmet service requirements

Changing Climate and Sea Ice : *Emerging Customer Requirements*

- Regulatory
- Emergency Response
- Supply Chain Management
- Resource Extraction
- Transportation
- Ecological





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Service Challenges

- Sea Ice Guidance
 - *Daily/Seasonal/Interannual*
- Coastal Storms
 - *Inundation / Erosion*
- Influences
 - *River Outflow & Sea Ice*
- Volcanic Ash
- Aviation Flight Safety
 - *Arctic Stratus & Icing*
- Supply Chain Impacts
- Waves in Sea ice
- Wildfire Smoke Guidance
- Atmospheric River Flood Events
- General Forecast Processes
- Climate Change Impacts
 - Adaptability
 - To What?!

Societal Changes – How to communicate all of the above?



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Forecast Challenges

Current Science & Technology Gaps

- Scarce Arctic in-situ observation network
 - wave - ocean - ice buoys / wx & river observation platforms
- NWP Performance: CONUS vs. OCONUS
- Sea Ice Modeling capabilities far from mature
- Weather, water, ocean, wave and sea ice forecasting continue to be incredibly challenging



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Groundwork

Vision Statement:

Formulate a Test Bed plan to improve Marine, Weather, Climate and Sea Ice forecasting decision support capability to meet expanding needs in the Arctic. NOAA's Arctic Test Bed ensures that relevant operational scientific and technology advances are made to support the mandates of our core partners with weather, water, and climate information and predictions and associated impacts related to the people, infrastructure, and environment of Alaska and the Arctic.



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Groundwork

Purpose:

- Focus NWS Alaska Region development efforts to maximize service delivery effectiveness in Alaska
- Facilitate and improve (R2O) of new and improved products and services that fulfill current and emerging decision-support requirements
- Partner with, and leverage current NESDIS activities and other NOAA Test Beds on new Arctic-related products and data to support the NWS Weather Ready Nation



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Project Activity

Actions:

- Finalize initial Terms of Reference for the Arctic Testbed
- Formulate a Year 1 and Year 2 plan to establish initial operating procedures focusing on a limited number of high priority
- Develop procedures for forecaster evaluation and interaction both on site at the Testbed location in Anchorage and remotely at WFO Fairbanks and Juneau
- Build out Hardware Software Requirements to support the Testbed
 - AWIPS is our primary forecast tool



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Project Activity

Initial Project Priorities:

Leveraging Existing Partnerships

Arctic Requirements:

- Coupled Weather/Water/Ice Modeling
- WMO PPP YOPP
- Seasonal Sea Ice Guidance
- Partners – BOEM / NCEP / UAF / NRL / GSD / PMEL / EC / DWD

Satellite:

- Himawari 8
- GOES-R
- JPSS
- Partners – GINA / SPoRT / CIMSS / NESDIS - OCONUS Proving Ground



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Project Activity

Initial Projects:

FY15

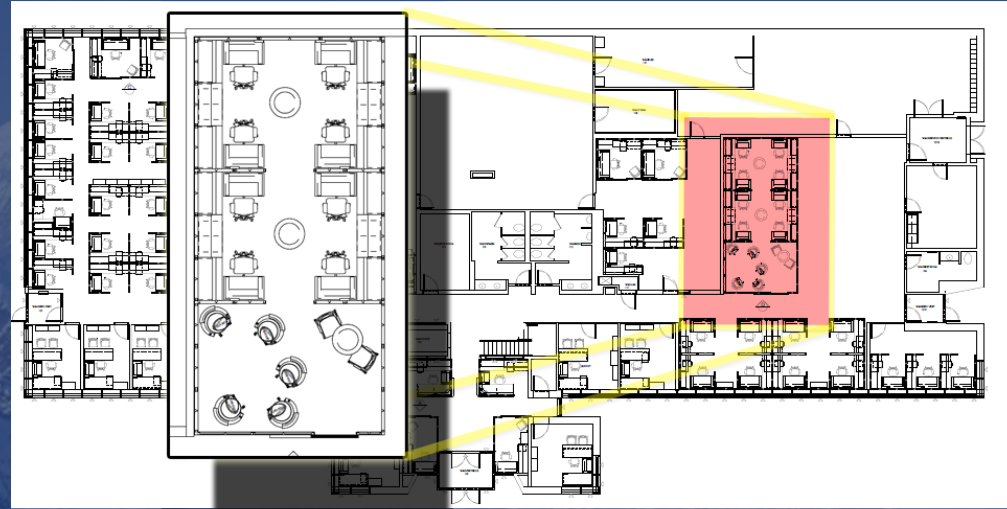
- Evaluate NRL ARCTICAP and EC RIPS short range sea ice forecast models (NRL / EC / BSEE)
- Develop a Sea Ice Verification Tool (EC)
- Evaluate Seasonal Sea Ice Melt Out / Freeze-up Forecasts from the CFSv2 (CPC / BOEM)
- Evaluate new POES imagery products (UAF-Gina/CIMSS/SPoRT/NESDIS-OPG)
- Implementation and Testing of initial Himawari-8 data flow (NESDIS –OPG)
- Initial planning of the WMO PPP YOPP for 2017-19 (NOAA/EC/DWD)
- Optimization of Current WFO operations (NWS AR)



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Test Bed Specifics

- WFO / RFC / AAWU
Anchorage co-location
- Filling positions FY15- FY17
 - Director
 - 2 Research Meteorologists
 - 2 Science Developers
 - NWS Forecasters to periodically rotate through
 - Visiting Scientist Opportunities
- Capabilities:
 - Integration with NWS forecast systems and data streams
 - Integration with research data streams
 - Potential secondary capability at University of Alaska at Fairbanks
 - Investigating sharing an FTE with UAF-Gina





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Challenges

- Resources – ATB staffing will be built up gradually over the next 2 years with the potential for additional staffing in the future
 - ATB staff is an In-Kind resource - Balance with other ARH activities
 - A gradual spin of up activities
 - Visiting scientists / external resources would accelerate
- Developing an effective evaluation process that balances in-situ activity at the ATB and at the WFOs outside Anchorage
- Most Partners / Experts not local to Anchorage
 - A shared FTE between ATB and UAF-Gina would be a bridge
 - Possible Full-Time FTE in future at NWS Fairbanks
- The goals and requirements of operations and research can be different. Very important that the Test Bed provides a mechanism for both to benefit